Abstract

This paper considers to what extent union decline in Britain has been characterised by convergence or divergence in union membership rates for people with different personal and job characteristics. It compares data on individual union membership in 1975, from a period when union membership was high and growing, to data in 2001 data when it is low and has been falling for over twenty years. Some factors of both convergence and divergence are identified.

The clearest individual characteristic of convergence is gender. In 1975 there was a big male-female gap in union membership, whilst by 2001 one cannot reject the hypothesis that union membership rates were equal for men and women. The clearest case of divergence is age where the 1975-2001 period sees a widening of the age gap in union membership status. Other factors of convergence are the full-time/part-time status of jobs, ethnicity and workplace size. Other factors of divergence are industry and educational qualifications. Some other factors (like region) are neutral in that their relationship with union membership remains stable through time.

Identification of these factors of convergence and divergence should be useful to many parties, including industrial relations scholars and union organisers. Finally, the fact that the magnitude of the relationships between union membership and a number of its determinants have shifted through time illustrates that one should be careful if one wishes to talk about empirical regularities in who is more or less likely to become a trade union member.

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Factors of Convergence and Divergence in Union Membership

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1. Introduction

Union decline in Britain has been rapid and relentless over the last twenty years. In the late 1970s over 13 million people – or around 58 percent of employees - were trade union members and over 70 percent of employees' wages were set by collective bargaining. Since reaching its peak in 1979, unionization (however measured) has fallen relentlessly year on year to the very low levels we now see today. Now less than 30 percent of workers are union members. In the private sector less than one in five workers are members.[1]

What is less well understood is the precise nature of union decline. For example, we do not know a great deal about how union decline has varied for different demographic groups; or for different kinds of employers. There is work that tries to link the aggregate fall in unionisation to compositional changes that have occurred at the same time (e.g. Green, 1992; Disney *et al*, 1994), with most of this work concluding that compositional changes (like the shift from manufacturing to services, the rise in female employment, and the increased number of smaller workplaces) play only a limited role in explaining union decline.[2] Similarly we also know that some characteristics of people and their jobs have been associated with union decline. Machin (2000), for example, emphasises that workplace age matters for union decline, as workplace union recognition rates are much lower for workplaces set up since 1980 as compared to older workplaces. Machin (2002) shows a similar widening of union membership differences between older and younger workers.

This paper attempts to give more detail on how union decline has differed across different characteristics of workers and their jobs. To put some structure on this question it asks whether union decline has been neutral across different groups, or whether one can identify convergence or divergence in union status for different sets of workers and jobs. The analysis focuses on a quite long time period as is necessary if one is interested in studying convergence/divergence patterns. Individual union membership is compared in 1975, from a period when union membership was high and growing, to 2001 when membership is low and has been falling for over twenty years.

Why is the identification of factors associated with differential union decline of interest? First, the reported findings should be useful to a number of parties interested in union decline. For industrial relations scholars they put more meat on the bones of the

[1] Pencavel (2002) and Metcalf (1991, 2001) discuss the wider implications of union decline.
[2] The cited studies look at the role of compositional change from comparing micro-data through time. Disney (1990) also concludes that composition played only a limited role in his survey of macro studies.

anatomy of union decline. For union organisers they shed more light on the precise characteristics of workers and jobs where union decline has been sharpest. Second, they make the point that, if factors are converging or diverging (and at different speeds), there is likely to be instability in the estimated parameters of statistical models of union membership. Having an idea of how much the parameters of union models do shift over time is not something we currently know much about, yet it has clear ramifications for the way in which one interprets and uses findings from empirical work on who joins trade unions.

The structure of the remainder of the paper is as follows. In Section 2, I make clear the concepts of divergence and convergence, and identify the factors to which the analysis attributes convergence and divergence patterns. Section 3 describes the data and presents some descriptive statistics. Section 4 presents the findings on factors of convergence and divergence. Section 5 links back to the literature on compositional change and actually shows the reasons why compositional changes seem to matter only to a limited extent in explaining aggregate union decline is because of patterns of convergence and divergence in union membership status. Finally, Section 6 concludes.

2. Concepts and Definitions

This section makes clear the concepts of convergence and divergence and the empirical tests used to uncover cross-time patterns of changes in the determinants of individual union membership.

Convergence and divergence

It is useful to define convergence and divergence relative to a situation of no change, or neutrality. If the gap in union status broken down by a given characteristic remains constant over time then one can think of this as neutrality in union status. A widening union status gap then corresponds to divergence in union decline. Similarly a narrowing of the union status gap through time corresponds to convergence in union status. An alternative way of thinking of this is that factors vary over time in how important they are as determinants of union status. So in a given period a factor may exert a stronger relationship with union joining probabilities as compared to another time period.

To make this clearer by means of an example, think of male-female differences in union membership status. The later empirical analysis will confirm gender to be a key factor of union convergence. The data used in this analysis shows that 66 percent of men were union members in 1975, as compared to 40 percent of women. There was clearly a very large gender gap in union membership status in that year. But by 2001 the union membership rate of men was 30 percent and of women was 29 percent. In this year one cannot reject the null hypothesis that union membership density was equal for men and women. As such one sees complete convergence in union membership status by gender between 1975 and 2001.

Factors of convergence and divergence

The example used above considered gender as a possible factor of convergence in union membership status. The reasons for looking at gender are obvious. Female employment rates have risen rapidly over the period of union decline so it is interesting to see whether this implied that aggregate union density should fall since unions have typically had higher membership rates amongst men or whether trade unions could offset this by organising more female workers than they were able to in the past.

But what other factors are of interest? The analysis that follows considers a number of potential factors of convergence/divergence. Those looked at are conditioned by two observations. First, they reflect a need to define variables consistently through time. This is conditioned by data availability for the two years considered. Second, they are chosen on the basis of judgement of what are likely to have been the most important changes in the nature of work over the time period under study.

The following factors are investigated:

i) gender;
ii) age;
iii) educational attainment;
iv) full-time/part-time job;
v) ethnicity;
vi) workplace size (number of employees);
vii) industry;
viii) region.

All of these factors are ones considered at various times in the (sizable) literature on who becomes a union member (see the survey of these studies in Booth, 1995). Indeed some

of the literature talks of empirical regularities in who joins unions, ranging from the cliché that union membership rates are higher amongst male, manual, manufacturing workers to the clear relationships often uncovered between union membership and worker age, full-time job status, workplace size (bigger implies more unionised) and so on. However, the focus here is less on regularities but actually on whether relationships have shifted so as to imply convergence or divergence between the selected groups of interest. The fact that the analysis shows some factors are associated with convergence or divergence actually proves to debunk the notion of empirical regularities that would require union membership gaps to be neutral (i.e. stable) through time.

3. Data and Descriptive Statistics

Data

The data is drawn from two large individual-level cross-section surveys. The first is from 1975 and the second from 2001 so the analysis looks for factors of convergence and divergence over a twenty six year time period. This is important, as one clearly needs a reasonably long time horizon to be talking about patterns of convergence and divergence in trade union status over time.

The 1975 cross-section is the National Training Survey (NTS), a survey carried out by the Manpower Services Commission of around 54000 people. The data is described in more detail in the Manpower Services Commission (1978) report. The data has not, to my knowledge, been widely used to study union membership but Stewart (1983) does use the data to look at union effects on relative wages.

The 2001 data are from the autumn 2001 Labour Force Survey (LFS). The LFS is a large quarterly survey of households. Each autumn quarter asks questions on union membership status. This permits me to set up a data set that can be compared with the National Training Survey. Both of these data sources have large sample sizes, covering around 35000 people in 1975 and over 50000 people in 2001.

Descriptive statistics

Table 1 reports descriptive statistics for the 1975 and 2001 data on union membership. The first row of the Table clearly demonstrates the sharp fall in union membership density that took place in the last quarter century. In 1975 55 percent of people reported being members of a union (or staff association). By 2001 this had plummeted to just 29 percent.

The rest of the Table shows union gaps for the selected factors of interest and details how, in the raw data, the gaps have shifted through time. One can see that union membership gaps have rather a different structure in 1975 and 2001. Indeed hardly any of the comparisons in the Table show stability over time. The exception is the last comparison (in panel 8) where the north-south gap in union membership density remains constant over time. For all the other gaps there is either convergence or divergence.

The gender example already discussed above is reported in panel 1 of the Table. As one can see the gap fell from a .26 higher membership rate for men in 1975 to a situation where the gap all but vanished by 2001. The gender gap in union membership falls by a huge 25 percentage points, a fall that is strongly significant in statistical terms. This is a clear example of convergence in union membership. Further one can think of this as complete convergence as the gap that used to exist has disappeared by 2001.

Age, on the other hand, is a factor of divergence. Panel 2 compares union gaps by age of worker in the two years, showing union membership rates for people aged 30 and over compared to those aged under 30. The age related gap widens from .11 to .19 over time. This confirms earlier work showing that union membership has fallen faster amongst the young (Machin, 2002).

Panel 3 considers differences in union membership across education groups. The measure used is a crude one, namely whether people left the education system with any educational qualifications. In the past many people left with no qualifications so in 1975 58 percent of the sample reported having no qualifications. By 2001 this falls to only 11 percent, illustrating well the rapid extent of educational upgrading of the British workforce. There is some evidence of divergence in union membership by education. In 1975 there was no gap at all, but by 2001 it had widened out such that those with no qualification had a union membership rate of 6 percentage points lower than those with qualifications.

The full-time/part-time status of jobs is considered in panel 4. A very sharp convergence occurs here. In 1975 there was a huge gap of 32 percentage points between the

union membership rate of 60 percent for full-timers and 28 percent for those in part-time work. By 2001 this narrows considerably to a gap of 11 percentage points.

Ethnicity is considered in panel 5. Due to small-ish proportions of non-whites in Britain the analysis can only consider a non-white versus white comparison. The union membership gaps between these two groups actually switch around between 1975 and 2001. In 1975 non-whites were more likely to be union members (by 7 percentage points). But by 2001 this is reversed as the non-white membership rate falls to 26 percent as compared to a rate of 30 percent amongst whites.

One of the classic 'empirical regularities' highlighted in the literature on who joins unions is the connection to workplace size. Many studies demonstrate individuals to be much more likely to be union members if they work in larger workplaces (e.g. Bain and Elias, 1985; Booth, 1986). This is true in both years studied here as well, but the size of the link clearly diminishes through time. Panel 6 shows that in 1975 the gap in union membership between workplaces with 500 or more workers and those with less than 500 workers was .29. By 2001 this had fallen to .18, showing workplace size to be a convergence factor.

The same is true of broad industry. Panel 7 compares union membership rates for people working in manufacturing and non-manufacturing industries. There was a considerable gap in favour of manufacturing of 14 percentage points. This had entirely disappeared by 2001 where the rate of membership actually turns out to be slightly higher in non-manufacturing (driven mainly by the public sector industries included there).

Finally, the only stable factor considered in the Table is broad region. Panel 8 shows this to be a neutral determinant of union membership status in Britain.

The Table therefore shows the instability of these determinants of unionisation over time. This ought to make researchers feel a little uncomfortable about talk of regularities in who joins unions. Clearly the labour market has shifted in many important dimensions over the twenty six year period studied and this has altered the relationship between union status and the characteristics of workers and their jobs.

Furthermore, one may plausibly argue that many of these factors do not operate independent of one another. One would therefore like to devise a stronger set of tests of what are factors of convergence, divergence and neutrality. This is considered in the next section of the paper.

4. Factors of Convergence/Divergence Derived From Statistical Models

In this section of the paper estimates from statistical models are used to work out what factors are most strongly linked to union convergence and divergence. The approach taken is to enter a number of variables into multivariate statistical models and to test whether their coefficients remain stable over time. Here a statistically significant change in a coefficient over time will pick up convergence (if it suggests a fall in the implied union gap towards zero) or divergence (if it suggests a shift away from zero). A statistically insignificant change between 1975 and 2001 implies neutrality of a variable in its role as a determinant of union decline. I begin by presenting results for all individuals, and then move on to separate results by gender after that.

All individuals

Table 2 reports estimates of multivariate statistical models of who joins unions for the two time periods 1975 and 2001, together with changes in the estimated coefficients between the two periods. The final column then reports whether the factor considered is a factor of convergence, divergence or neutrality on the basis of the sign and significance of the changes given in the penultimate column of the Table.

The first thing to notice is that the models of union membership status display some similarities for the two time periods. But the overwhelming feeling is one of change. The final column confirms this where one sees the majority of variables considered are characterised as either convergent or divergent. Put alternatively, there are statistically significant shifts in the estimated coefficients of the statistical models over time. This shows the union membership equations to be characterised by parameter instability over time.

As with the basic data description, the clearest example of convergence is that related to gender. The models show a very strong fall in the estimated coefficient on the male dummy variable (by .137 from .145 to .007). By 2001 there is no gender gap in union membership. This corresponds to complete convergence.

Strong divergence is shown for the age variable, revealing age to now be a more important determinant of who joins trade unions than it used to be. The same is true, though quantitatively to a lesser extent, for the no qualifications variable. This becomes a more negative determinant of union membership in 2001 as compared to 1975.

Convergence is linked to a number of other factors. Another way of thinking about these is that they now mean that these variables are less important determinants of union membership in 2001 than they used to be. For example, the effect of being in a full-time job as compared to working in part-time employment is much less important in 2001 then in 1975, although there remains a strong positive association with membership. One can think of this as showing partial convergence. The same is true of workplace size. There remains a positive and statistically significant relation with union membership status in 2001 but the estimated coefficients fall. The fall is particularly marked (by .104 from .335 to .231) for the larger workplaces. Finally, complete convergence occurs for the non-white variable whose coefficient falls from being positive and statistically significant in 1975 to being insignificantly different from zero in 2001.

Industrial structure, on the other hand, appears to be becoming more important. The eight industry groupings contained in the Table are structured so as to be compared to a ninth left out group, public administration. Hence the reason that most coefficients are negative within years. They show union membership to be lower in specific industries as compared to public administration. However, the gaps appear more important in 2001 than in 1975 and in several industries (agriculture, chemicals, engineering, other manufacturing, transport and finance) union membership rates are seen to be lower in 2001 relative to public administration than they were in 1975. As such one has seen union divergence linked to industrial structure.

The final set of variables considered is a more detailed set of regional variables. Five regional groups are considered relative to Scotland, the omitted reference group. This is really the only strong evidence for stability in the Table. One cannot reject the hypothesis of neutrality for all the regional variables. Put differently, the regional structure of union membership does not seem to shift between 1975 and 2001.

Men and women separately

The complete convergence of union membership rates for men and women means that one may wonder if any of the identified factors of union convergence and divergence shows different paces of change by gender. To examine this Tables 3A and 3B report estimates of the multivariate models, along with classifications of different factors, for men and women separately.

The main features of the earlier analysis seem to go through, particularly for the factors showing considerable change. So, for example, the divergence of union membership associated with worker age appears for both men and women and the changes in the age coefficients rise by similarly sharp, and statistically significant, amounts (by .135 in Table 3A for men, and by .159 in Table 3B for women). Similarly the divergence in union membership linked to industrial structure reveals very similar patterns by gender.

Some of the convergence factors also seem to operate in similar ways for men and women. Working in a larger workplace or in a full-time job both show strong (partial) convergence for men and women and again the change in the estimated coefficients are similar (at -.101 and -.076 for full-time and at -.101 and -.094 for large workplace size for men and women respectively). The same is true of the neutrality of region for changes in union status for both sexes.

The only differences by gender appear to be those for factors that showed less change in their importance as determinants of union membership. The lack of educational qualifications variable appears to converge for men and diverge for women. However, the effects are not that sizable. Finally, the non-white variable shows a convergence for men but never displays any statistically significant relationship with union membership for women.

5. How Convergence/Divergence and Compositional Change Relate to One Another

As the discussion in the Introduction made clear, researchers who have looked at the role of compositional changes (like the shift from male to female work, from manufacturing to services, from full-time to part-time jobs and so on) have only had very limited success in identifying a role for such change. The usual way in which one thinks about this is to take statistical models of union status estimated in two periods and decompose the aggregate change in union status into a component due to compositional changes (changes in the means of the determinants of union membership) and a component reflecting changes in the estimated coefficients from the statistical models.

Decomposition of changes in union status

The easiest way to see this is to consider two models of union status (U) for two time periods using a simple Oaxaca (1973) decomposition. We can think of the years I study here and distinguish between the two period by superscripts for 1975 and 2001 as follows:

1975 model: $U^{1975} = ß^{1975}X^{1975} + u^{1975}$

2001 model: $U^{2001} = ß^{2001}X^{2001} + u^{2001}$

Here the u variables are error terms, the X's are the determinants of union status and the ß's are the coefficients on the X's. So in terms of the earlier discussion one can think of convergence and divergence as being picked up by changes in the ß's over time ($ß^{2001} < ß^{1975}$ implying convergence and $ß^{2001} > ß^{1975}$ implying divergence, relative to neutrality of $ß^{2001} = ß^{1975}$).

The standard decomposition says that one can subtract the 1975 equation from the 2001 equation, and rearrange terms, to get:

$$U^{2001} - U^{1975} = ß^{2001}X^{2001} + u^{2001} - ß^{1975}X^{1975} + u^{1975}$$

$$= (ß^{2001} - ß^{1975})X^{2001} + (X^{2001} - X^{1975})\, ß^{1975} + (u^{2001} - u^{1975})$$

If expressed in terms of the averages of variables the $(u^{2001} - u^{1975})$ drops out of the equation under the usual assumption about zero means of error terms.[3]

The importance of compositional changes is usually ascertained from changes in the means of the determinants of union status, namely the $(X^{2001} - X^{1975})\, ß^{1975}$ component of the decomposition. The other term $(ß^{2001} - ß^{1975})X^{2001}$ is usually thought of as a residual. However, in actual fact it measures changes in the importance of a given X variable in a union status equation, which the analysis here thinks of as reflecting convergence and divergence.

Earlier work only finds a limited amount union decline to be due to compositional change (e.g. Green, 1992, reports an upper bound of 1/3 of the 1983 to 1989 decline in union density to be attributable to compositional change). One can therefore think of the rest as being due to convergence/divergence. It is thus interesting to see how important this is for the longer time period studied here.

[3] Of course, the U variable here is a 0-1 variable so one needs to exercise some caution here, but the basic thrust of the argument is illustrated in terms of the Oaxaca decomposition.

Decompositions 1975-2001

Table 4 reports the results of the decomposition, based upon the regressions from Table 2. The overall union decline of -.253 points is broken down into -.201 for the $(ß^{2001} – ß^{1975})X^{2001}$ component and -.053 for the $(X^{2001} – X^{1975})\ ß^{1975}$ component. So the story of compositional change playing only a limited role in the earlier studies is confirmed over my much longer period of study. In fact the -.053 contribution accounts for just over 20 percent of the decline in union membership status observed between 1975 and 2001.

The rest is due to the changes in the ß's over time. The remainder of the Table therefore breaks out the $(ß^{2001} – ß^{1975})X^{2001}$ component for each of the separate X variables. This tends to confirm the analysis of convergence/divergence carried out earlier and shows the strong importance of changes in the union joining rates of men versus women, of workers of different ages, of full-time versus part-time employment and of industry over the time period studied. The more important aspect of union decline is not compositional change, but convergence and divergence in union joining rates across people with different personal and job characteristics.

6. Conclusions

This paper sets out to give more detail on what factors have been more closely linked to union decline than others over the last quarter century. It frames the discussion in terms of factors of convergence, divergence and neutrality with respect to union membership status. Factors defined as convergence factors are those that have become less important as determinants of unionisation, whilst the role of divergence factors has become more pronounced over time. Factors defined as neutral have an unchanging influence on union membership status.

The empirical work presented in this paper finds the relationship between union membership status and many of its determinants to have changed significantly between 1975 and 2001. In fact there are seen to be hardly any neutral factors. There are some very strong examples of convergence, most notably gender where the male-female gap in union status had entirely disappeared by 2001. Other factors of convergence are the full-time/part-time status of jobs, ethnicity and workplace size. The clearest case of divergence relates to age of

worker where the 1975-2001 period sees a widening of the age gap in union membership status. Other factors of divergence are industry and educational qualifications. Regional variables are neutral in that their relationship with union membership remains stable through time. Of course, this pattern of changing coefficients in statistical models reveals why previous researchers, and my own analysis above, have only found a limited role for compositional changes in explaining aggregate union decline.

The inability to find many neutral factors means one should be careful if one wishes to talk about empirical regularities that determine union membership status. There are two aspects to this, one linked to partial convergence and the other to complete convergence. The stronger latter case actually corresponds to factors that used to be important determinants of union status that no longer are. The clearest case in this paper is gender. But even partial convergence factors might make one worry about discussing regularities. Take the case of workplace size. In the empirical results presented earlier it was always true that working in a larger workplace significantly raised the probability of being a union member. But the size of this effect clearly diminished between 1975 and 2001, falling by .104 from .335 to .231. In the former working in a workplace raised the probability of being a union member by 34 percentage points, yet by 2001 this number was considerably lower at 23 percentage points. Industrial relations researchers should therefore be careful to look at the magnitudes of associations with union membership status, at the very least, when considering the determinants of union status at different points in time.

Table 1: Union Membership Proportions and Changes in Membership Gaps, 1975-2001

	1975	2001	Change in Gap (Standard Error)
All	.55	.29	
1. Gender			
Men	.66	.30	
Women	.40	.29	
Gap: Men - Women	.26	.01	-.25 (.007)
2. Age			
Age =30	.59	.34	
Age < 30	.48	.15	
Gap: Age =30 - Age =30	.11	.19	.08 (.005)
3. Education			
No Qualifications	.55	.24	
Some Qualifications	.55	.30	
Gap: None - Some	.00	-.06	-.06 (.009)
4. Full/Part-Time Job			
Full-Time	.60	.32	
Part-Time	.28	.21	
Gap: Full - Part	.32	.11	-.21 (.008)
5. Ethnicity			
Non-White	.61	.26	
White	.54	.30	
Gap: Non-White – White	.07	-.04	-.11 (.018)
6. Size of Workplace			
Larger Workplace (500 or more workers)	.77	.45	
Smaller Workplace (< 500 workers)	.48	.27	
Gap: Large - Small	.29	.18	-.12 (.008)
7. Industry			
Manufacturing	.64	.27	
Non-Manufacturing	.50	.30	
Gap: Manufacturing – Non-Manufacturing	.14	-.03	-.17 (.008)
8. Region			
North	.59	.33	
South	.52	.27	
Gap: North - South	.07	.06	-.01 (.007)

Notes: Sample cover all people aged 18-64 inclusive in each year. Sample sizes for descriptive statistics are: 1975 National Training Survey 35371; 2001 Labour Force Survey 53081. The means of the variables were as follows: 1975 - male .58, age =30 .67, no qualifications .58, full-time .83, non-white .03, larger workplace .25, manufacturing .36, north .43; 2001 - male .50, age =30 .75, no qualifications .11, full-time .75, non-white .06, larger workplace .14, manufacturing .18, north .41.

Table 2: Identifying Factors of Convergence and Divergence in Individual Union Membership, 1975-2001
(Standard Errors in Parentheses)

	1975	2001	Change (Standard Error)	Convergence/ Divergence/ Neutral
Male	.145 (.006)	.007 (.004)	-.137 (.008)	Convergence (Complete)
Age/100	.407 (.020)	.543 (.016)	.136 (.026)	Divergence
No Qualifications	-.012 (.006)	-.048 (.006)	-.036 (.008)	Divergence
Full-Time	.163 (.008)	.093 (.005)	-.070 (.009)	Convergence (Partial)
Non-White	.031 (.016)	.008 (.009)	-.023 (.018)	Convergence (Complete)
Size (500 or more)	.335 (.008)	.231 (.006)	-.104 (.010)	Convergence (Partial)
Size (25-499)	.170 (.006)	.151 (.004)	-.020 (.008)	Convergence (Partial)
Industry: Agriculture	-.015 (.014)	-.105 (.015)	-.090 (.021)	Divergence
Industry: Chemicals and Minerals	-.024 (.014)	-.242 (.014)	-.218 (.020)	Divergence
Industry: Engineering	-.076 (.008)	-.203 (.007)	-.126 (.011)	Divergence
Industry: Other Manufacturing	-.089 (.009)	-.198 (.008)	-.108 (.012)	Divergence
Industry: Construction	-.215 (.011)	-.226 (.009)	-.011 (.014)	Neutral
Industry: Services	-.232 (.009)	-.250 (.006)	-.018 (.010)	Neutral
Industry: Transport	.096 (.011)	-.029 (.008)	-.126 (.013)	Divergence
Industry: Finance	-.071 (.013)	-.233 (.006)	-.163 (.014)	Divergence
Region: North East	-.016 (.011)	-.007 (.008)	.008 (.013)	Neutral
Region: North West	.006 (.011)	-.012 (.009)	-.019 (.012)	Neutral
Region: Midlands	-.033 (.010)	-.052 (.008)	-.019 (.012)	Neutral
Region: London, South East	-.119 (.009)	-.124 (.007)	-.005 (.011)	Neutral
Region: Wales, South West	-.038 (.010)	-.040 (.008)	-.002 (.013)	Neutral
Sample Size	30848	48862		

Notes: 1975 equations based on National Training Survey data. 2001 equations based on Labour Force Survey data. These are coefficient estimates from linear probability models of union membership. The omitted reference groups are: size of workplace - < 25 workers; industry - public administration; region - scotland. Linear probability estimates are reported due to the non-linearities in probit estimates making the changes only approximations. Nonetheless marginal effects from probit models were extremely similar to the linear probability coefficients. A full set of probit marginals are available for comparison from the author on request.

Table 3A: Identifying Factors of Convergence and Divergence in Male Individual Union Membership, 1975-2001
(Standard Errors in Parentheses)

	1975	2001	Change (Standard Error)	Convergence/ Divergence/ Neutral
Age/100	.428 (.025)	.563 (.023)	.135 (.034)	Divergence
No Qualifications	-.021 (.007)	-.009 (.009)	.012 (.012)	Convergence (Complete)
Full-Time	.195 (.054)	.094 (.011)	-.101 (.054)	Convergence (Partial)
Non-White	.048 (.020)	.004 (.012)	-.045 (.023)	Convergence (Complete)
Size (500 or more)	.352 (.010)	.248 (.009)	-.105 (.013)	Convergence (Partial)
Size (25-499)	.194 (.009)	.168 (.006)	-.026 (.011)	Convergence (Partial)
Industry: Agriculture	.004 (.017)	-.046 (.019)	-.050 (.025)	Divergence
Industry: Chemicals and Minerals	.024 (.016)	-.190 (.017)	-.214 (.023)	Divergence
Industry: Engineering	-.059 (.010)	-.166 (.009)	-.107 (.014)	Divergence
Industry: Other Manufacturing	-.081 (.012)	-.148 (.011)	-.068 (.016)	Divergence
Industry: Construction	-.193 (.012)	-.194 (.011)	-.001 (.016)	Neutral
Industry: Services	-.265 (.014)	-.258 (.009)	.008 (.017)	Neutral
Industry: Transport	.125 (.013)	.020 (.010)	-.106 (.016)	Divergence
Industry: Finance	-.025 (.020)	-.241 (.010)	-.215 (.022)	Divergence
Region: North East	-.020 (.014)	.006 (.011)	.008 (.018)	Neutral
Region: North West	.008 (.014)	-.003 (.013)	-.011(.019)	Neutral
Region: Midlands	-.027 (.013)	-.053 (.011)	-.026 (.017)	Neutral
Region: London, South East	-.101 (.012)	-.106 (.010)	-.005 (.015)	Neutral
Region: Wales, South West	-.030 (.014)	-.021 (.012)	.009 (.018)	Neutral
Sample Size	17965	24200		

Notes: as for Table 2.

Table 3B: Identifying Factors of Convergence and Divergence in Female Individual Union Membership, 1975-2001
(Standard Errors in Parentheses)

	1975	2001	Change (Standard Error)	Convergence/ Divergence/ Neutral
Age/100	.350 (.034)	.509 (.023)	.159 (.040)	Divergence
No Qualifications	-.002 (.009)	-.076 (.009)	-.074 (.012)	Divergence
Full-Time	.172 (.009)	.096 (.006)	-.076 (.010)	Convergence (Partial)
Non-White	-.001 (.027)	.016 (.012)	.017 (.028)	Neutral
Size (500 or more)	.316 (.012)	.222 (.009)	-.094 (.015)	Convergence (Partial)
Size (25-499)	.146 (.009)	.137 (.006)	-.009 (.011)	Neutral
Industry: Agriculture	-.027 (.029)	-.210 (.027)	-.183 (.039)	Divergence
Industry: Chemicals and Minerals	-.190 (.031)	-.344 (.025)	-.154 (.040)	Divergence
Industry: Engineering	-.100 (.015)	-.280 (.014)	-.180 (.021)	Divergence
Industry: Other Manufacturing	-.090 (.013)	-.269 (.013)	-.179 (.018)	Divergence
Industry: Construction	-.294 (.038)	-.303 (.022)	-.009 (.042)	Neutral
Industry: Services	-.211 (.012)	-.237 (.007)	-.026 (.013)	Neutral
Industry: Transport	.027 (.022)	-.118 (.014)	-.145 (.025)	Divergence
Industry: Finance	-.109 (.019)	-.221 (.008)	-.113 (.019)	Divergence
Region: North East	-.035 (.017)	-.024 (.011)	.012 (.019)	Neutral
Region: North West	.003 (.017)	-.021 (.012)	-.024(.020)	Neutral
Region: Midlands	-.042 (.016)	-.052 (.011)	-.010 (.018)	Neutral
Region: London, South East	-.138 (.014)	-.139 (.010)	-.001 (.017)	Neutral
Region: Wales, South West	-.045 (.016)	-.014 (.019)	-.014 (.019)	Neutral
Sample Size	12883	24662		

Notes: as for Table 2.

Table 4: The Contributions of Factors of Convergence and Divergence and Compositional Changes to Aggregate Union Decline, 1975-2001

	Aggregate Change in Union Membership = -.253	
	Due to: Convergence/Divergence Factors $(ß^{2001} – ß^{1975})X^{2001}$	Due to: Compositional Change Factors $(X^{2001} – X^{1975}) ß^{1975}$
All Factors	-.201	-.053
Male	-.068	-.013
Age	.053	.005
No Qualifications	-.004	.006
Full-Time	-.052	-.016
Non-White	-.001	.001
Size of Workplace	-.025	-.026
Industry	-.058	-.006
Region	-.006	-.003

Notes: these are based on the decomposition of aggregate changes in union status $U^{2000} – U^{1975} = (ß^{2000} – ß^{1975})X^{2001} + (X^{2000} – X^{1975}) ß^{1975}$, calculated from the specifications in Table 2. There is also a contribution to $(ß^{2001} – ß^{1975})X^{2001}$ from the constant term of -.040.

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